



# Socio-spatial regulation of interactions among children in day care centers

Alain Legendre

## ► To cite this version:

Alain Legendre. Socio-spatial regulation of interactions among children in day care centers. Medio ambiente, bienestar humano y responsabilidad ecológica, 2006, Madrid, Spain. pp.485-490. halshs-00291321

**HAL Id: halshs-00291321**

**<https://shs.hal.science/halshs-00291321>**

Submitted on 30 Jun 2008

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

IX Congreso de Psicología Ambiental, Madrid.

Author: Alain Legendre

Affiliation : CNRS – Université Paris V : Laboratoire de Psychologie Environnementale

Title: **Socio-spatial regulation of interactions among children in day care centers**

Key words: Preschool children, day care centers, social interactions, use of space, spatial arrangement.

**Abstract**

The presentation illustrates how the dynamic system of the interdependency between physical and social components regulates children's social behavior in day care centers. Specifically, we examined how the location of the caregivers in the playroom combines with the spatial arrangement of this playroom to modulate toddlers' social interactions with peers. The study was carried out with 159 toddlers (18–38 months) in 10 groups. Children's behaviors were observed during free-play periods; additionally both children and caregivers' locations were recorded. Spatial analyzes were elaborated to delineate 3 socio-spatial sectors depending on the probability for children to be in the immediate proximity of an adult: adult-proximal, intermediary and adult-distant sectors. Results show that peer interactions vary significantly as a function of these 3 sectors. Especially, toddlers spent notably more time in positive peer interactions in the adult-distant sector than in the other sectors. The lower scores are observed in the adult-proximal sector. The proportion of the playroom area occupied by the adult-distant sector appears as a reliable predictor of interactions among children. Practical recommendations for the organization of day care centers are outlined.

## **Resumen**

**Titulo : Regulación socio-espacial de las interacciones de los niños en las guarderías.**

**Palabras clave:** interacciones sociales, uso del espacio, organización espacial, guarderías.

Esta presentación ilustra como la interdependencia entre los factores físicos y sociales influye en el comportamiento social de los niños en las guarderías. Se analiza la manera en que la distribución espacial de las educadoras en la sala de actividades se articula con la organización de este espacio incidiendo en las interacciones entre los niños. La investigación se efectuó con 159 niños (18-38 meses) en diez guarderías. Se observaron sus comportamientos durante las actividades libres. Asimismo, se realizó un registro de la ubicación de niños y educadoras. Se generaron análisis que permitieron definir tres sectores socio-espaciales determinando la probabilidad que tienen los niños de proximidad con un adulto: "cercano", "intermediario" y "alejado". Los resultados muestran que las interacciones entre niños varían significativamente entre los tres sectores. En particular, los niños pasan más tiempo en interacciones positivas en el sector alejado y notablemente menos en el sector cercano a las educadoras. La proporción del área ocupada por el "sector alejado al adulto" surge como un factor relevante de la ocurrencia y duración de las interacciones entre niños. Se proponen algunas recomendaciones prácticas para la organización de las guarderías.

## Síntesis / Synthesis

We carried out a study with 2- to 3-year-old children attending day care centers to examine how the physical and social attributes of these group contexts interfere to modulate toddlers' behavior. In particular, we examined the respective and combined impact of the social and spatial attributes of the distribution of the caregivers' locations in the playroom on these young peers' interactions.

In developmental psychology, studies on the role of caregivers in the development of toddlers' interactions give rise to some controversy. Some results support the view that in providing children with a secure base, caregivers help children to engage in peer interactions that are often uncertain and can lead to conflicts. Other studies point out that during the third year of life interactions among peers are difficult and fragile and require an important effort in socio-cognitive coordination, whereas interacting with caregivers is easier because adults are more attentive and supportive. Thus, in a group setting, caregivers can be particularly attractive partners to the disadvantage of social orientation towards peers.

Our objective was to tackle this question with an environmental perspective involving an accurate spatial analysis. Specifically, we addressed two questions:

- 1- In a group setting, are the social interactions among 2- to -3-year-old peers influenced by proximity to adult caregivers?
- 2- Is the spatial distribution of the caregivers' locations in the playroom affecting the interactions among toddlers?

## Method

**Populations and settings.** The study was conducted in 10 groups of center-based day-care. Participants were 159 children who regularly attended the centers. The children's ages ranged from 18 to 38 months ( $M = 29.5$  months).

**Observations.** We observed the children during free-play periods. Children's behaviors were recorded with a 3-camera video system that provided a full view of the playroom. Each child was observed for a minimum of 30 minutes spread over 3 different days. The behavioral categories were designed to characterize the type of relationship that the child established with the immediate context. Specifically, at each coding interval-- i.e., every 3 seconds --we determined whether the child's behavior was self-centered, object-oriented or socially-oriented. Whenever it was a social interaction, we noted whether the partners of the interactions were peers or adults and we distinguished several interactive modes (e.g., positive, negative). Additionally, at each coding interval, children's and caregivers' locations were precisely noted on a square meter grid partitioning floor-plan of the playroom.

#### **Preliminary spatial analysis: determination of socio-spatial sectors**

An accurate analysis of the spatial distribution of the adults' locations in the playroom was undertaken to delineate spatial sectors characterized by the degree of probability for a child to be in close proximity from an adult, namely within quasi immediate physical reach at less than 2 meters. Relying on a descriptive map of the caregivers' locations in the playroom, we conceived an algorithm that computed for each square of the grid the probability for a child to be in close proximity to a caregiver.

This operates a shift from a descriptive map to a probability map. The underlying idea was that a probability map of proximity to adults could approach the children's cognitive representation of the caregivers' occupancy of the room. The hypothesis was that toddlers could have such a representation helping them to determine their uses of the different areas of the playroom. For such young children in a group setting, whenever they need support or want to escape to the direct caregivers' control, it is critical to know where the adults often stay, where they occasionally stand and where they rarely go. If this hypothesis is correct, then a behavior such as interacting with peers should vary as a function of spatial sectors

defined by the degree of probability to be in the immediate proximity to adults. Subsequently, using the probability map, three sectors were distinguished.

- **Adult proximal sector:** areas where the caregivers are usually located during free plays and where the probability to be in close proximity to adults is superior to 25% of the time.
- **Intermediary sector:** areas in which the probability to be nearby an adult ranges between 5% and 25% of the time.
- **Adult-distant sector:** areas where caregivers rarely go and stay, in which the probability to be nearby an adult is less than 5%.

## Results

### Peer interactions in the three socio-spatial sectors

Table 1 shows that the percentage of time children spent interacting with peers increases as the probability to be nearby an adult decreases. This phenomenon is observed for overall peer interactions and positive ones, but not for negative ones.

**Table 1:** Percentage of time children spent interacting with peers in each socio-spatial sectors

Peer interactions	Socio-spatial sectors		
	Adult-proximal	Intermediary	Adult-distant
Overall	9.28%	14.46%	23.08%
Positives	4.43%	8.67%	16.15%
Negatives	3.42%	3.35%	3.84%

To check whether data reported in Table 1 were statistically significant; ANOVAs for repeated measures were performed with the three sectors as within-subjects factor and the 10 day-care groups as between-subject factor. Results clearly show that consistently across groups children adjust their involvement in interactions with peers depending on the socio-spatial sector in which they are. Interestingly, these results specify that the positive interactions with peers are particularly susceptible to the presence of an adult in the

immediate surrounding. Toddlers need to be at some distance from adults to engage in and sustain affiliative and friendly interactions with peers, whereas negative interactions (i.e., competitions, conflicts, fights) do not vary as a function of distance to caregivers.

### **Relations of peer interactions with caregivers spatial distribution**

The ways caregivers move around and occupied the playroom space noticeably fluctuate from a group to one another. Thus, the size and the proportion of the playroom area occupied by each socio-spatial sector also markedly differ from a group to one another. Regression analyses were computed to explore the relations between several indicators of the caregivers' spatial distribution and peer interactions.

Results suggest that toddlers are likely to spend more time interacting positively with peers when the proportion of the playroom area occupied by the adult-distant sector increases. Moreover, more the caregivers are moving around or staying out of the adult-proximal sector less likely are toddlers to develop positive interactions with peers. Together, these two variables account for one fifth of the variance in the percentage of time children spent interacting positively with peers during free plays,  $R^2 = .21$ ,  $F(2, 157) = 20.2$ ,  $p < .001$ .

### **Discussion**

These results support the view that close proximity to adults hinder the onset and development of interactions among toddlers, particularly of the most positive ones. These young children necessitate areas at some distance to caregivers to escape their social attractiveness and turn to peers to engage in and sustain positive interactions. Furthermore, in group settings such as day care centers, the caregivers' spatial distribution-- that is the way they move around and occupy the playroom space --affects children's interactions with peers. If caregivers spread over the room restricting the area and the clear demarcation of an adult-distant sector this has a negative impact on the development of peer interactions.

However, we have shown in modifying the spatial arrangement to compare a visually open arrangement to a visually restricted one (Legendre, 1995; Legendre & Fontaine, 1991), that when major visual boundaries restricted visual access to the whole playroom toddlers reduce their use of the adult-distant areas and spend less time in peer interactions, particularly the positive ones, which are shorter whereas the amount of conflicts increase. Thus, on the other hand, an easy visual access to the caregivers provides these young children with a secure base that is a critical condition to engage in and sustain interactions with peers.

Therefore, the environmental approach enlightens the double and opposite influences of caregivers on social interactions among children. Results stress the inhibitory impact of close proximity to adults on these interactions, but they also show that the presence and visual access to caregivers provide children with a secure base essential in the development of peers' interactions. These findings illustrate how physical and social components of a group setting and their interactions intervene in the regulation of the children's behaviors. Their particular interest is to show that both positive and negative influences of adults on peers' interactions can be either reinforced or minimized by modifying the socio-spatial arrangement of playrooms. Specifically, to enhance social interactions among 2-to-3-year-old children, and particularly the most positive and longest ones:

- Caregivers should give children the opportunity to use either adult-proximal or adult-distant areas, avoiding dispersion in the whole playroom;
- The spatial arrangement and the layout of the furniture should provide children with an easy visual access to caregivers in the whole playroom.

## References

- Legendre, A. (1995). The effects of environmentally modulated visual accessibility to caregivers on early peer interactions. *International Journal of Behavioral Development*, 18(2), 297-313.
- Legendre, A., & Fontaine, A. M. (1991). Effects of visual boundaries in two-year olds' playrooms. *Children's Environment Quarterly*, 8(1), 2-16.